XXXIII.—*Zoological Notices.* By Dr. A. Philippi*. With Plates III. and IV.

[Continued from p. 96.]

6. *Pandorina coruscans*, Scacchi. Plate IV. fig. 1—4.

Sr. Arcangelo Scacchi has described this remarkable genus in his 'Osservazioni Zoologiche,' p. 14 (May 1833), in the following words: "Testa bivalvi, transversim oblonga, alba; latere antico (i. e. anali) productiore, truncato, hiante; postico (i. e. orali) rotundato; valvis inæqualibus, fragilissimis, subpellucidis, intus margaritarum nitore coruscantibus, exterius ad ambitum tenuissimo epidermide obductis, longitudinaliter striatis, ad umbones læviusculis; striis transversis obsoletis; valva dextra (i. e. sinistra) majore, umbone ac limbo superiore (i. e. ventrali) sinistram superante; valva sinistra (i. e. dextra, si animal incedens inspicitur) inferius ad latus anticum (i. e. posticum) super dextram producta; membrana prætenui ad latera umbonum valvas revinciente; cardine edentulo; linea prominula obliqua pro ligamenti insertione; ligamento tantum interno oblongo; ultra pollicem lata, altitudine 5 lin." To this description I have only the following remarks to add. The longitudinal striæ are extremely delicate, elevated, and every fourth is as it were beset with small points, which proceed from the epidermis. The membrane, which unites posteriorly the dorsal margin of the shells, I would without hesitation call an *external ligament*. An *area* and a *lunula* may be distinguished, which are rather sharply defined, and are smoother than the rest of the shell: both are narrow and asymmetrical; the *lunula* is broader on the left shell, the *area* on the right. The *muscular impressions* are tolerably near to the margin; the anterior one is longitudinally oval, the posterior one more quadrate and far nearer to the margin on the left shell than on the right, which corresponds to the line defining the *area*. The *impression of the mantle* has a very slight incurvation, which forms nearly a right angle with the part of the shell parallel to its ventral margin. This indicates two very short tubes, which the animal actually possesses. The *hinge* is quite toothless; never-

* Translated from Wiegmann's 'Archiv,' Part 2. 1839.—The Plates will be given next month, in the Supplement.

XXXIII.—*Zoological Notices.* By Dr. A. Philippi*. With Plates III. and IV.

[Continued from p. 96.]

6. *Pandorina coruscans*, Scacchi. Plate IV. fig. 1—4.

Sr. Arcangelo Scacchi has described this remarkable genus in his 'Osservazioni Zoologiche,' p. 14 (May 1833), in the following words: "Testa bivalvi, transversim oblonga, alba; latere antico (i. e. anali) productiore, truncato, hiante; postico (i. e. orali) rotundato; valvis inæqualibus, fragilissimis, subpellucidis, intus margaritarum nitore coruscantibus, exterius ad ambitum tenuissimo epidermide obductis, longitudinaliter striatis, ad umbones læviusculis; striis transversis obsoletis; valva dextra (i. e. sinistra) majore, umbone ac limbo superiore (i. e. ventrali) sinistram superante; valva sinistra (i. e. dextra, si animal incedens inspicitur) inferius ad latus anticum (i. e. posticum) super dextram producta; membrana prætenui ad latera umbonum valvas revinciente; cardine edentulo; linea prominula obliqua pro ligamenti insertione; ligamento tantum interno oblongo; ultra pollicem lata, altitudine 5 lin." To this description I have only the following remarks to add. The longitudinal striæ are extremely delicate, elevated, and every fourth is as it were beset with small points, which proceed from the epidermis. The membrane, which unites posteriorly the dorsal margin of the shells, I would without hesitation call an *external ligament*. An *area* and a *lunula* may be distinguished, which are rather sharply defined, and are smoother than the rest of the shell: both are narrow and asymmetrical; the *lunula* is broader on the left shell, the *area* on the right. The *muscular impressions* are tolerably near to the margin; the anterior one is longitudinally oval, the posterior one more quadrate and far nearer to the margin on the left shell than on the right, which corresponds to the line defining the *area*. The *impression of the mantle* has a very slight incurvation, which forms nearly a right angle with the part of the shell parallel to its ventral margin. This indicates two very short tubes, which the animal actually possesses. The *hinge* is quite toothless; never-

* Translated from Wiegmann's 'Archiv,' Part 2. 1839.—The Plates will be given next month, in the Supplement.

XXXIII.—*Zoological Notices.* By Dr. A. Philippi*. With Plates III. and IV.

[Continued from p. 96.]

6. *Pandorina coruscans*, Scacchi. Plate IV. fig. 1—4.

Sr. Arcangelo Scacchi has described this remarkable genus in his 'Osservazioni Zoologiche,' p. 14 (May 1833), in the following words: "Testa bivalvi, transversim oblonga, alba; latere antico (i. e. anali) productiore, truncato, hiante; postico (i. e. orali) rotundato; valvis inæqualibus, fragilissimis, subpellucidis, intus margaritarum nitore coruscantibus, exterius ad ambitum tenuissimo epidermide obductis, longitudinaliter striatis, ad umbones læviusculis; striis transversis obsoletis; valva dextra (i. e. sinistra) majore, umbone ac limbo superiore (i. e. ventrali) sinistram superante; valva sinistra (i. e. dextra, si animal incedens inspicitur) inferius ad latus anticum (i. e. posticum) super dextram producta; membrana prætenui ad latera umbonum valvas revinciente; cardine edentulo; linea prominula obliqua pro ligamenti insertione; ligamento tantum interno oblongo; ultra pollicem lata, altitudine 5 lin." To this description I have only the following remarks to add. The longitudinal striæ are extremely delicate, elevated, and every fourth is as it were beset with small points, which proceed from the epidermis. The membrane, which unites posteriorly the dorsal margin of the shells, I would without hesitation call an *external ligament*. An *area* and a *lunula* may be distinguished, which are rather sharply defined, and are smoother than the rest of the shell: both are narrow and asymmetrical; the *lunula* is broader on the left shell, the *area* on the right. The *muscular impressions* are tolerably near to the margin; the anterior one is longitudinally oval, the posterior one more quadrate and far nearer to the margin on the left shell than on the right, which corresponds to the line defining the *area*. The *impression of the mantle* has a very slight incurvation, which forms nearly a right angle with the part of the shell parallel to its ventral margin. This indicates two very short tubes, which the animal actually possesses. The *hinge* is quite toothless; never-

* Translated from Wiegmann's 'Archiv,' Part 2. 1839.—The Plates will be given next month, in the Supplement.

XXXIII.—*Zoological Notices.* By Dr. A. Philippi*. With Plates III. and IV.

[Continued from p. 96.]

6. *Pandorina coruscans*, Scacchi. Plate IV. fig. 1—4.

Sr. Arcangelo Scacchi has described this remarkable genus in his 'Osservazioni Zoologiche,' p. 14 (May 1833), in the following words: "Testa bivalvi, transversim oblonga, alba; latere antico (i. e. anali) productiore, truncato, hiante; postico (i. e. orali) rotundato; valvis inæqualibus, fragilissimis, subpellucidis, intus margaritarum nitore coruscantibus, exterius ad ambitum tenuissimo epidermide obductis, longitudinaliter striatis, ad umbones læviusculis; striis transversis obsoletis; valva dextra (i. e. sinistra) majore, umbone ac limbo superiore (i. e. ventrali) sinistram superante; valva sinistra (i. e. dextra, si animal incedens inspicitur) inferius ad latus anticum (i. e. posticum) super dextram producta; membrana prætenui ad latera umbonum valvas revinciente; cardine edentulo; linea prominula obliqua pro ligamenti insertione; ligamento tantum interno oblongo; ultra pollicem lata, altitudine 5 lin." To this description I have only the following remarks to add. The longitudinal striæ are extremely delicate, elevated, and every fourth is as it were beset with small points, which proceed from the epidermis. The membrane, which unites posteriorly the dorsal margin of the shells, I would without hesitation call an *external ligament*. An *area* and a *lunula* may be distinguished, which are rather sharply defined, and are smoother than the rest of the shell: both are narrow and asymmetrical; the *lunula* is broader on the left shell, the *area* on the right. The *muscular impressions* are tolerably near to the margin; the anterior one is longitudinally oval, the posterior one more quadrate and far nearer to the margin on the left shell than on the right, which corresponds to the line defining the *area*. The *impression of the mantle* has a very slight incurvation, which forms nearly a right angle with the part of the shell parallel to its ventral margin. This indicates two very short tubes, which the animal actually possesses. The *hinge* is quite toothless; never-

* Translated from Wiegmann's 'Archiv,' Part 2. 1839.—The Plates will be given next month, in the Supplement.

theless the margin projects directly before the vertex of the right shell in the form of a little tooth (see fig. 3.). The *cavity* for the ligament runs very obliquely backwards and is perfectly linear. To my great surprise, I found in my three young specimens, instead of the ligament, a *bone*, as in *Osteodesma* and others, of an elongated nearly pentagonal form, with the apex directed anteriorly, the slightly hollowed basis posteriorly, and moderately gibbous on the ventral side*.

The *animal* of *Pandorina* has, according to a drawing communicated to me by Sr. Scacchi, two short slightly projecting siphons, with fringes at the margin, and a long compressed and narrow foot, the situation of which proves that at least a third part of the mantle anteriorly is split.

I had found this shell in a fossil state in Sicily, and named it *Pandora*? *æquivalvis* in my 'Enumeratio Molluscorum Siciliæ,' and I also noticed the resemblance and difference between it and *Pandora* as far as they were to be seen on the fossil specimens. The principal differences in the shell are as follows: 1. The right half is perfectly flat in *Pandora*, in *Pandorina* only a little less vaulted. 2. *Pandora* has teeth on the hinge. Lamarck's statement in 'Hist. Nat. des Anim. sans Vert.' is not good; on the contrary, that of Deshayes in the second edition of the same work is excellent: they consist, on the left shell, in a front tooth (which in those *Pandoræ* that I have at hand to compare is perfectly flat), and a deep cavity between it and the ligament, into which fits a tooth of the right flat shell. In *Pandorina* every trace of a tooth has disappeared on the left shell, and on the right one only an exceedingly slight analogue to it exists in the projection of the margin. 3. *Pandora* has quite simply an internal ligament. I must however remark, that *Pandora* appears to me to possess also a second ligament, namely, immediately at the margin, fig. 5 *a*; fig. *b*. is the usual one. 4. *Pandora* has a perfectly simple muscular impression, whilst in *Pandorina* only a

* Sr. Scacchi remarks, 'Enum.,' p. 6. Note on *Thracia*, "in utraque specie reperimus ossiculum mobile ad cardinem, quum specimina juniora observavimus; at in adultioribus seu majoribus etiam cum mollusco perquisitis, illud nunquam invenimus. Miramur sane ossiculum illud adolescente conchylio evanescere; sed sic observatio pluries repetita nos cogit opinari, neque inspectio testarum suspicari permittit, specimina majora diversas constituere species." May not this also be the case with *Pandorina*?

theless the margin projects directly before the vertex of the right shell in the form of a little tooth (see fig. 3.). The *cavity* for the ligament runs very obliquely backwards and is perfectly linear. To my great surprise, I found in my three young specimens, instead of the ligament, a *bone*, as in *Osteodesma* and others, of an elongated nearly pentagonal form, with the apex directed anteriorly, the slightly hollowed basis posteriorly, and moderately gibbous on the ventral side*.

The *animal* of *Pandorina* has, according to a drawing communicated to me by Sr. Scacchi, two short slightly projecting siphons, with fringes at the margin, and a long compressed and narrow foot, the situation of which proves that at least a third part of the mantle anteriorly is split.

I had found this shell in a fossil state in Sicily, and named it *Pandora*? *æquivalvis* in my 'Enumeratio Molluscorum Siciliæ,' and I also noticed the resemblance and difference between it and *Pandora* as far as they were to be seen on the fossil specimens. The principal differences in the shell are as follows: 1. The right half is perfectly flat in *Pandora*, in *Pandorina* only a little less vaulted. 2. *Pandora* has teeth on the hinge. Lamarck's statement in 'Hist. Nat. des Anim. sans Vert.' is not good; on the contrary, that of Deshayes in the second edition of the same work is excellent: they consist, on the left shell, in a front tooth (which in those *Pandoræ* that I have at hand to compare is perfectly flat), and a deep cavity between it and the ligament, into which fits a tooth of the right flat shell. In *Pandorina* every trace of a tooth has disappeared on the left shell, and on the right one only an exceedingly slight analogue to it exists in the projection of the margin. 3. *Pandora* has quite simply an internal ligament. I must however remark, that *Pandora* appears to me to possess also a second ligament, namely, immediately at the margin, fig. 5 *a*; fig. *b*. is the usual one. 4. *Pandora* has a perfectly simple muscular impression, whilst in *Pandorina* only a

* Sr. Scacchi remarks, 'Enum.,' p. 6. Note on *Thracia*, "in utraque specie reperimus ossiculum mobile ad cardinem, quum specimina juniora observavimus; at in adultioribus seu majoribus etiam cum mollusco perquisitis, illud nunquam invenimus. Miramur sane ossiculum illud adolescente conchylio evanescere; sed sic observatio pluries repetita nos cogit opinari, neque inspectio testarum suspicari permittit, specimina majora diversas constituere species." May not this also be the case with *Pandorina*?

theless the margin projects directly before the vertex of the right shell in the form of a little tooth (see fig. 3.). The *cavity* for the ligament runs very obliquely backwards and is perfectly linear. To my great surprise, I found in my three young specimens, instead of the ligament, a *bone*, as in *Osteodesma* and others, of an elongated nearly pentagonal form, with the apex directed anteriorly, the slightly hollowed basis posteriorly, and moderately gibbous on the ventral side*.

The *animal* of *Pandorina* has, according to a drawing communicated to me by Sr. Scacchi, two short slightly projecting siphons, with fringes at the margin, and a long compressed and narrow foot, the situation of which proves that at least a third part of the mantle anteriorly is split.

I had found this shell in a fossil state in Sicily, and named it *Pandora*? *æquivalvis* in my 'Enumeratio Molluscorum Siciliæ,' and I also noticed the resemblance and difference between it and *Pandora* as far as they were to be seen on the fossil specimens. The principal differences in the shell are as follows: 1. The right half is perfectly flat in *Pandora*, in *Pandorina* only a little less vaulted. 2. *Pandora* has teeth on the hinge. Lamarck's statement in 'Hist. Nat. des Anim. sans Vert.' is not good; on the contrary, that of Deshayes in the second edition of the same work is excellent: they consist, on the left shell, in a front tooth (which in those *Pandoræ* that I have at hand to compare is perfectly flat), and a deep cavity between it and the ligament, into which fits a tooth of the right flat shell. In *Pandorina* every trace of a tooth has disappeared on the left shell, and on the right one only an exceedingly slight analogue to it exists in the projection of the margin. 3. *Pandora* has quite simply an internal ligament. I must however remark, that *Pandora* appears to me to possess also a second ligament, namely, immediately at the margin, fig. 5 *a*; fig. *b*. is the usual one. 4. *Pandora* has a perfectly simple muscular impression, whilst in *Pandorina* only a

* Sr. Scacchi remarks, 'Enum.,' p. 6. Note on *Thracia*, "in utraque specie reperimus ossiculum mobile ad cardinem, quum specimina juniora observavimus; at in adultioribus seu majoribus etiam cum mollusco perquisitis, illud nunquam invenimus. Miramur sane ossiculum illud adolescente conchylio evanescere; sed sic observatio pluries repetita nos cogit opinari, neque inspectio testarum suspicari permittit, specimina majora diversas constituere species." May not this also be the case with *Pandorina*?

theless the margin projects directly before the vertex of the right shell in the form of a little tooth (see fig. 3.). The *cavity* for the ligament runs very obliquely backwards and is perfectly linear. To my great surprise, I found in my three young specimens, instead of the ligament, a *bone*, as in *Osteodesma* and others, of an elongated nearly pentagonal form, with the apex directed anteriorly, the slightly hollowed basis posteriorly, and moderately gibbous on the ventral side*.

The *animal* of *Pandorina* has, according to a drawing communicated to me by Sr. Scacchi, two short slightly projecting siphons, with fringes at the margin, and a long compressed and narrow foot, the situation of which proves that at least a third part of the mantle anteriorly is split.

I had found this shell in a fossil state in Sicily, and named it *Pandora*? *æquivalvis* in my 'Enumeratio Molluscorum Siciliæ,' and I also noticed the resemblance and difference between it and *Pandora* as far as they were to be seen on the fossil specimens. The principal differences in the shell are as follows: 1. The right half is perfectly flat in *Pandora*, in *Pandorina* only a little less vaulted. 2. *Pandora* has teeth on the hinge. Lamarck's statement in 'Hist. Nat. des Anim. sans Vert.' is not good; on the contrary, that of Deshayes in the second edition of the same work is excellent: they consist, on the left shell, in a front tooth (which in those *Pandoræ* that I have at hand to compare is perfectly flat), and a deep cavity between it and the ligament, into which fits a tooth of the right flat shell. In *Pandorina* every trace of a tooth has disappeared on the left shell, and on the right one only an exceedingly slight analogue to it exists in the projection of the margin. 3. *Pandora* has quite simply an internal ligament. I must however remark, that *Pandora* appears to me to possess also a second ligament, namely, immediately at the margin, fig. 5 *a*; fig. *b*. is the usual one. 4. *Pandora* has a perfectly simple muscular impression, whilst in *Pandorina* only a

* Sr. Scacchi remarks, 'Enum.,' p. 6. Note on *Thracia*, "in utraque specie reperimus ossiculum mobile ad cardinem, quum specimina juniora observavimus; at in adultioribus seu majoribus etiam cum mollusco perquisitis, illud nunquam invenimus. Miramur sane ossiculum illud adolescente conchylio evanescere; sed sic observatio pluries repetita nos cogit opinari, neque inspectio testarum suspicari permittit, specimina majora diversas constituere species." May not this also be the case with *Pandorina*?

slight incurvation of the mantle can be recognised. From this it appears that *Pandorina** is certainly the most nearly allied to *Pandora*; but on account of the internal bone of the ligament, the absence of teeth to the hinge, the gaping of the posterior side, this genus also joins on to *Thracia*, which (at present I can only compare *Thr. phaseolina* or *Tellina papyracea*, Poli) is distinguished by a short external ligament resting on distinct nymphæ, by a far more decided incision beneath the apex and a deeper incurvation of the mantle; here too the left shell is the more convex, as in *Corbula*, not the right one, as in *Pandora* and *Pandorina*. But *Pandorina* is distinguished from both these by the *longitudinal striæ*, which, as far as I am acquainted, do not occur in them or even in the whole family of the *Myæ* and *Corbulæ*.

From this last circumstance, the complete absence of hinge teeth, the double ligament, the brittleness of the shell, and lastly from the thinness of the epidermis which covers the whole shell, *Pandorina* brings to mind the singular genus *Galeomma*, which is truly very different at first sight, from the equality of the shells and the wide gaping of the ventral side, as also from the existence of only one tube, or if we choose the second obliterated, as in *Solenomya*†; nevertheless, I believe that *Galeomma* is more nearly allied to this genus than to any other. M. Deshayes, who was only acquainted with the mere shell, classes it with *Glycymeris*, which genus however differs very considerably by its very thick epidermis, rather reminding us of *Solenomya*, its strong prominent nymphæ, its small foot, its slightly slit mantle, and the long thick cohering siphons.

There are at present therefore six genera with a little bone in the ligament: *Anatina*, Lamarck, Desh.; *Periploma*, Schum.; *Osteodesma*, Desh.; *Thracia*, Leach; *Pandorina*, Scacchi, which all belong to the family of the *Myaceæ*, to which Deshayes with good reason unites the *Corbulaceæ*; and *Cleidothærus*, Sow., which is allied to the *Chamæ*.

* See note in the following article, p. 305.

† On the outside of *Solenomya* where we expect to find the anal tube, it presents a circle of papillæ, which is however *not* perforated, as is very accurately stated by Sr. Scacchi. This explains why M. Deshayes has ascribed two siphons to the *Solenomya*, I on the contrary only one. We both saw correctly, but not accurately enough.

slight incurvation of the mantle can be recognised. From this it appears that *Pandorina** is certainly the most nearly allied to *Pandora*; but on account of the internal bone of the ligament, the absence of teeth to the hinge, the gaping of the posterior side, this genus also joins on to *Thracia*, which (at present I can only compare *Thr. phaseolina* or *Tellina papyracea*, Poli) is distinguished by a short external ligament resting on distinct nymphæ, by a far more decided incision beneath the apex and a deeper incurvation of the mantle; here too the left shell is the more convex, as in *Corbula*, not the right one, as in *Pandora* and *Pandorina*. But *Pandorina* is distinguished from both these by the *longitudinal striæ*, which, as far as I am acquainted, do not occur in them or even in the whole family of the *Myæ* and *Corbulæ*.

From this last circumstance, the complete absence of hinge teeth, the double ligament, the brittleness of the shell, and lastly from the thinness of the epidermis which covers the whole shell, *Pandorina* brings to mind the singular genus *Galeomma*, which is truly very different at first sight, from the equality of the shells and the wide gaping of the ventral side, as also from the existence of only one tube, or if we choose the second obliterated, as in *Solenomya*†; nevertheless, I believe that *Galeomma* is more nearly allied to this genus than to any other. M. Deshayes, who was only acquainted with the mere shell, classes it with *Glycymeris*, which genus however differs very considerably by its very thick epidermis, rather reminding us of *Solenomya*, its strong prominent nymphæ, its small foot, its slightly slit mantle, and the long thick cohering siphons.

There are at present therefore six genera with a little bone in the ligament: *Anatina*, Lamarck, Desh.; *Periploma*, Schum.; *Osteodesma*, Desh.; *Thracia*, Leach; *Pandorina*, Scacchi, which all belong to the family of the *Myaceæ*, to which Deshayes with good reason unites the *Corbulaceæ*; and *Cleidothærus*, Sow., which is allied to the *Chamæ*.

* See note in the following article, p. 305.

† On the outside of *Solenomya* where we expect to find the anal tube, it presents a circle of papillæ, which is however *not* perforated, as is very accurately stated by Sr. Scacchi. This explains why M. Deshayes has ascribed two siphons to the *Solenomya*, I on the contrary only one. We both saw correctly, but not accurately enough.

slight incurvation of the mantle can be recognised. From this it appears that *Pandorina** is certainly the most nearly allied to *Pandora*; but on account of the internal bone of the ligament, the absence of teeth to the hinge, the gaping of the posterior side, this genus also joins on to *Thracia*, which (at present I can only compare *Thr. phaseolina* or *Tellina papyracea*, Poli) is distinguished by a short external ligament resting on distinct nymphæ, by a far more decided incision beneath the apex and a deeper incurvation of the mantle; here too the left shell is the more convex, as in *Corbula*, not the right one, as in *Pandora* and *Pandorina*. But *Pandorina* is distinguished from both these by the *longitudinal striæ*, which, as far as I am acquainted, do not occur in them or even in the whole family of the *Myæ* and *Corbulæ*.

From this last circumstance, the complete absence of hinge teeth, the double ligament, the brittleness of the shell, and lastly from the thinness of the epidermis which covers the whole shell, *Pandorina* brings to mind the singular genus *Galeomma*, which is truly very different at first sight, from the equality of the shells and the wide gaping of the ventral side, as also from the existence of only one tube, or if we choose the second obliterated, as in *Solenomya*†; nevertheless, I believe that *Galeomma* is more nearly allied to this genus than to any other. M. Deshayes, who was only acquainted with the mere shell, classes it with *Glycymeris*, which genus however differs very considerably by its very thick epidermis, rather reminding us of *Solenomya*, its strong prominent nymphæ, its small foot, its slightly slit mantle, and the long thick cohering siphons.

There are at present therefore six genera with a little bone in the ligament: *Anatina*, Lamarck, Desh.; *Periploma*, Schum.; *Osteodesma*, Desh.; *Thracia*, Leach; *Pandorina*, Scacchi, which all belong to the family of the *Myaceæ*, to which Deshayes with good reason unites the *Corbulaceæ*; and *Cleidothærus*, Sow., which is allied to the *Chamæ*.

* See note in the following article, p. 305.

† On the outside of *Solenomya* where we expect to find the anal tube, it presents a circle of papillæ, which is however *not* perforated, as is very accurately stated by Sr. Scacchi. This explains why M. Deshayes has ascribed two siphons to the *Solenomya*, I on the contrary only one. We both saw correctly, but not accurately enough.

slight incurvation of the mantle can be recognised. From this it appears that *Pandorina** is certainly the most nearly allied to *Pandora*; but on account of the internal bone of the ligament, the absence of teeth to the hinge, the gaping of the posterior side, this genus also joins on to *Thracia*, which (at present I can only compare *Thr. phaseolina* or *Tellina papyracea*, Poli) is distinguished by a short external ligament resting on distinct nymphæ, by a far more decided incision beneath the apex and a deeper incurvation of the mantle; here too the left shell is the more convex, as in *Corbula*, not the right one, as in *Pandora* and *Pandorina*. But *Pandorina* is distinguished from both these by the *longitudinal striæ*, which, as far as I am acquainted, do not occur in them or even in the whole family of the *Myæ* and *Corbulæ*.

From this last circumstance, the complete absence of hinge teeth, the double ligament, the brittleness of the shell, and lastly from the thinness of the epidermis which covers the whole shell, *Pandorina* brings to mind the singular genus *Galeomma*, which is truly very different at first sight, from the equality of the shells and the wide gaping of the ventral side, as also from the existence of only one tube, or if we choose the second obliterated, as in *Solenomya*†; nevertheless, I believe that *Galeomma* is more nearly allied to this genus than to any other. M. Deshayes, who was only acquainted with the mere shell, classes it with *Glycymeris*, which genus however differs very considerably by its very thick epidermis, rather reminding us of *Solenomya*, its strong prominent nymphæ, its small foot, its slightly slit mantle, and the long thick cohering siphons.

There are at present therefore six genera with a little bone in the ligament: *Anatina*, Lamarck, Desh.; *Periploma*, Schum.; *Osteodesma*, Desh.; *Thracia*, Leach; *Pandorina*, Scacchi, which all belong to the family of the *Myaceæ*, to which Deshayes with good reason unites the *Corbulaceæ*; and *Cleidothærus*, Sow., which is allied to the *Chamæ*.

* See note in the following article, p. 305.

† On the outside of *Solenomya* where we expect to find the anal tube, it presents a circle of papillæ, which is however *not* perforated, as is very accurately stated by Sr. Scacchi. This explains why M. Deshayes has ascribed two siphons to the *Solenomya*, I on the contrary only one. We both saw correctly, but not accurately enough.

PLATE IV. *Fig.* 1. *Pandorina coruscans*, Scac., a small specimen, lying upon the left, more strongly vaulted, shell.

Fig. 2. The same lying on the ventral side in order to show the *area* and *lunula*.

Fig. 3. The same opened and twice magnified.

a. The little bone in the ligament.

b. The cavity into which the bone fits.

c. The external ligament.

Fig. 4. The animal of *Pandorina* after a drawing of Sr. Scacchi.

Fig. 5. A shell of *Pandora rostrata* for comparison.

a. An external ligament?

b. The internal ligament.

c. The hinge tooth.

7. On the Animal of *Astarte incrassata*, De la Jonk. Plate IV. fig. 6.

I obtained two specimens of this rare animal which were still alive, but as they would not open their shells I was compelled to use force. The animal was therefore seen in a half contracted state: the mantle is almost entirely split: a narrow band separates posteriorly a small roundish aperture, which supplies the place of the anal and branchial tubes, as was to be expected from the analogy of the shell with that of the genus *Venus*. At the margin of this aperture, as well as at the margin of the hinder portion of the front aperture, the mantle is of a dark brown colour and beset with very delicate white filiform cirri. More anteriorly these cirri become smaller and take in some degree the shape of white folds. The *foot* is securiform, acute behind and in front, therefore constricted, and in this way distinctly separated from the mass of the intestines; it is of a scarlet red colour. The *branchiæ* are dissimilar; the interior one is nearly triangular, and exhibits a dorsal, a ventral, and a front side. It is connected by the dorsal side to the outer branchia, which is only about half the size, not projecting so far anteriorly, and is rounded where the inner one exhibits the strongly projecting angle. Both the branchiæ are fastened by their common apex to the narrow connexion of the two lobes of the mantle between its anterior and posterior aperture, yet so slightly, that they are easily separated. The *appendices buccales* are two in number on each side, small and oblong.

Sr. Scacchi observed this animal some years ago, and gave

PLATE IV. *Fig.* 1. *Pandorina coruscans*, Scac., a small specimen, lying upon the left, more strongly vaulted, shell.

Fig. 2. The same lying on the ventral side in order to show the *area* and *lunula*.

Fig. 3. The same opened and twice magnified.

a. The little bone in the ligament.

b. The cavity into which the bone fits.

c. The external ligament.

Fig. 4. The animal of *Pandorina* after a drawing of Sr. Scacchi.

Fig. 5. A shell of *Pandora rostrata* for comparison.

a. An external ligament?

b. The internal ligament.

c. The hinge tooth.

7. On the Animal of *Astarte incrassata*, De la Jonk. Plate IV. fig. 6.

I obtained two specimens of this rare animal which were still alive, but as they would not open their shells I was compelled to use force. The animal was therefore seen in a half contracted state: the mantle is almost entirely split: a narrow band separates posteriorly a small roundish aperture, which supplies the place of the anal and branchial tubes, as was to be expected from the analogy of the shell with that of the genus *Venus*. At the margin of this aperture, as well as at the margin of the hinder portion of the front aperture, the mantle is of a dark brown colour and beset with very delicate white filiform cirri. More anteriorly these cirri become smaller and take in some degree the shape of white folds. The *foot* is securiform, acute behind and in front, therefore constricted, and in this way distinctly separated from the mass of the intestines; it is of a scarlet red colour. The *branchiæ* are dissimilar; the interior one is nearly triangular, and exhibits a dorsal, a ventral, and a front side. It is connected by the dorsal side to the outer branchia, which is only about half the size, not projecting so far anteriorly, and is rounded where the inner one exhibits the strongly projecting angle. Both the branchiæ are fastened by their common apex to the narrow connexion of the two lobes of the mantle between its anterior and posterior aperture, yet so slightly, that they are easily separated. The *appendices buccales* are two in number on each side, small and oblong.

Sr. Scacchi observed this animal some years ago, and gave

PLATE IV. *Fig.* 1. *Pandorina coruscans*, Scac., a small specimen, lying upon the left, more strongly vaulted, shell.

Fig. 2. The same lying on the ventral side in order to show the *area* and *lunula*.

Fig. 3. The same opened and twice magnified.

a. The little bone in the ligament.

b. The cavity into which the bone fits.

c. The external ligament.

Fig. 4. The animal of *Pandorina* after a drawing of Sr. Scacchi.

Fig. 5. A shell of *Pandora rostrata* for comparison.

a. An external ligament?

b. The internal ligament.

c. The hinge tooth.

7. On the Animal of *Astarte incrassata*, De la Jonk. Plate IV. fig. 6.

I obtained two specimens of this rare animal which were still alive, but as they would not open their shells I was compelled to use force. The animal was therefore seen in a half contracted state: the mantle is almost entirely split: a narrow band separates posteriorly a small roundish aperture, which supplies the place of the anal and branchial tubes, as was to be expected from the analogy of the shell with that of the genus *Venus*. At the margin of this aperture, as well as at the margin of the hinder portion of the front aperture, the mantle is of a dark brown colour and beset with very delicate white filiform cirri. More anteriorly these cirri become smaller and take in some degree the shape of white folds. The *foot* is securiform, acute behind and in front, therefore constricted, and in this way distinctly separated from the mass of the intestines; it is of a scarlet red colour. The *branchiæ* are dissimilar; the interior one is nearly triangular, and exhibits a dorsal, a ventral, and a front side. It is connected by the dorsal side to the outer branchia, which is only about half the size, not projecting so far anteriorly, and is rounded where the inner one exhibits the strongly projecting angle. Both the branchiæ are fastened by their common apex to the narrow connexion of the two lobes of the mantle between its anterior and posterior aperture, yet so slightly, that they are easily separated. The *appendices buccales* are two in number on each side, small and oblong.

Sr. Scacchi observed this animal some years ago, and gave

PLATE IV. *Fig.* 1. *Pandorina coruscans*, Scac., a small specimen, lying upon the left, more strongly vaulted, shell.

Fig. 2. The same lying on the ventral side in order to show the *area* and *lunula*.

Fig. 3. The same opened and twice magnified.

a. The little bone in the ligament.

b. The cavity into which the bone fits.

c. The external ligament.

Fig. 4. The animal of *Pandorina* after a drawing of Sr. Scacchi.

Fig. 5. A shell of *Pandora rostrata* for comparison.

a. An external ligament?

b. The internal ligament.

c. The hinge tooth.

7. On the Animal of *Astarte incrassata*, De la Jonk. Plate IV. fig. 6.

I obtained two specimens of this rare animal which were still alive, but as they would not open their shells I was compelled to use force. The animal was therefore seen in a half contracted state: the mantle is almost entirely split: a narrow band separates posteriorly a small roundish aperture, which supplies the place of the anal and branchial tubes, as was to be expected from the analogy of the shell with that of the genus *Venus*. At the margin of this aperture, as well as at the margin of the hinder portion of the front aperture, the mantle is of a dark brown colour and beset with very delicate white filiform cirri. More anteriorly these cirri become smaller and take in some degree the shape of white folds. The *foot* is securiform, acute behind and in front, therefore constricted, and in this way distinctly separated from the mass of the intestines; it is of a scarlet red colour. The *branchiæ* are dissimilar; the interior one is nearly triangular, and exhibits a dorsal, a ventral, and a front side. It is connected by the dorsal side to the outer branchia, which is only about half the size, not projecting so far anteriorly, and is rounded where the inner one exhibits the strongly projecting angle. Both the branchiæ are fastened by their common apex to the narrow connexion of the two lobes of the mantle between its anterior and posterior aperture, yet so slightly, that they are easily separated. The *appendices buccales* are two in number on each side, small and oblong.

Sr. Scacchi observed this animal some years ago, and gave

a short description of it in his 'Osservazioni Zoologiche,' (No. II. May 1833, p. 15.) which are but little known. His statements perfectly agree with my observations, with this one exception, that I cannot find the large reddish brown spot which he saw on the mantle in the region of the umbones. I must also fully subscribe to his views upon the systematic classification of the animal which he adds to his description. The description proves that the animal of *Astarte* has no resemblance to that of *Venus*, as was supposed from the constitution of the shell by Cuvier, 'Règne Animal,' edit. 2. vol. iii. p. 150, and Rang, 'Manuel de Malacol.' p. 314, and Deshayes in Lamarck, 'Hist. d. Anim. sans Vert.' edit. 2. vol. vi. p. 256, but on the contrary it quite agrees with *Cardita*.

I cannot help remarking on this occasion, how frequently the laws of analogy which we expect to find between animal and shell fail in the Molluscs. Whilst in the vertebrate animals, almost without exception, a similar osseous skeleton, and even some similar bones, necessarily belong to animals which are also similarly formed in their other systems, we find that in very many cases this is not so in the molluscs. To quite similarly formed shells belong animals of decidedly different structure. I only refer to *Vermetus* and *Serpula*, *Sigaretus* or *Coriocella*, and *Cryptostoma** and *Buccinum*, Lamk., where *B. undatum* is hardly distinguishable from *Fusus antiquus* by anything but its black spots, whilst *B. Linnæi* and *B. maculosum* agree with *Purpura*, *Columbella* and *Mitra*; and many other species, as *B. mutabile*, greatly differ from both mentioned forms; lastly, *Fusus* and *Pleurotoma*. On the contrary, a very similar animal often inhabits very dissimilar shells. I will mention for example *Achatina* and *Carocolla*, *Mitra* and *Purpura*, *Cerithium* and *Rostellaria pes pelecani*, *Cardita* and *Astarte*, &c.

I have still one correction to add concerning the synonyms of *Astarte incrassata*. I formerly added to this the *Venus Danmoniensis* and *V. sulcata* of English authors; but my friend M. Koch has pointed out to me that the English species is decidedly distinct. M. Deshayes also in his second edition of Lamarck, represents the *Astarte incrassata* (*Venus incras-*

* See note in the following article, p. 307.

a short description of it in his 'Osservazioni Zoologiche,' (No. II. May 1833, p. 15.) which are but little known. His statements perfectly agree with my observations, with this one exception, that I cannot find the large reddish brown spot which he saw on the mantle in the region of the umbones. I must also fully subscribe to his views upon the systematic classification of the animal which he adds to his description. The description proves that the animal of *Astarte* has no resemblance to that of *Venus*, as was supposed from the constitution of the shell by Cuvier, 'Règne Animal,' edit. 2. vol. iii. p. 150, and Rang, 'Manuel de Malacol.' p. 314, and Deshayes in Lamarck, 'Hist. d. Anim. sans Vert.' edit. 2. vol. vi. p. 256, but on the contrary it quite agrees with *Cardita*.

I cannot help remarking on this occasion, how frequently the laws of analogy which we expect to find between animal and shell fail in the Molluscs. Whilst in the vertebrate animals, almost without exception, a similar osseous skeleton, and even some similar bones, necessarily belong to animals which are also similarly formed in their other systems, we find that in very many cases this is not so in the molluscs. To quite similarly formed shells belong animals of decidedly different structure. I only refer to *Vermetus* and *Serpula*, *Sigaretus* or *Coriocella*, and *Cryptostoma** and *Buccinum*, Lamk., where *B. undatum* is hardly distinguishable from *Fusus antiquus* by anything but its black spots, whilst *B. Linnæi* and *B. maculosum* agree with *Purpura*, *Columbella* and *Mitra*; and many other species, as *B. mutabile*, greatly differ from both mentioned forms; lastly, *Fusus* and *Pleurotoma*. On the contrary, a very similar animal often inhabits very dissimilar shells. I will mention for example *Achatina* and *Carocolla*, *Mitra* and *Purpura*, *Cerithium* and *Rostellaria pes pelecani*, *Cardita* and *Astarte*, &c.

I have still one correction to add concerning the synonyms of *Astarte incrassata*. I formerly added to this the *Venus Danmoniensis* and *V. sulcata* of English authors; but my friend M. Koch has pointed out to me that the English species is decidedly distinct. M. Deshayes also in his second edition of Lamarck, represents the *Astarte incrassata* (*Venus incras-*

* See note in the following article, p. 307.

a short description of it in his 'Osservazioni Zoologiche,' (No. II. May 1833, p. 15.) which are but little known. His statements perfectly agree with my observations, with this one exception, that I cannot find the large reddish brown spot which he saw on the mantle in the region of the umbones. I must also fully subscribe to his views upon the systematic classification of the animal which he adds to his description. The description proves that the animal of *Astarte* has no resemblance to that of *Venus*, as was supposed from the constitution of the shell by Cuvier, 'Règne Animal,' edit. 2. vol. iii. p. 150, and Rang, 'Manuel de Malacol.' p. 314, and Deshayes in Lamarck, 'Hist. d. Anim. sans Vert.' edit. 2. vol. vi. p. 256, but on the contrary it quite agrees with *Cardita*.

I cannot help remarking on this occasion, how frequently the laws of analogy which we expect to find between animal and shell fail in the Molluscs. Whilst in the vertebrate animals, almost without exception, a similar osseous skeleton, and even some similar bones, necessarily belong to animals which are also similarly formed in their other systems, we find that in very many cases this is not so in the molluscs. To quite similarly formed shells belong animals of decidedly different structure. I only refer to *Vermetus* and *Serpula*, *Sigaretus* or *Coriocella*, and *Cryptostoma** and *Buccinum*, Lamk., where *B. undatum* is hardly distinguishable from *Fusus antiquus* by anything but its black spots, whilst *B. Linnæi* and *B. maculosum* agree with *Purpura*, *Columbella* and *Mitra*; and many other species, as *B. mutabile*, greatly differ from both mentioned forms; lastly, *Fusus* and *Pleurotoma*. On the contrary, a very similar animal often inhabits very dissimilar shells. I will mention for example *Achatina* and *Carocolla*, *Mitra* and *Purpura*, *Cerithium* and *Rostellaria pes pelecani*, *Cardita* and *Astarte*, &c.

I have still one correction to add concerning the synonyms of *Astarte incrassata*. I formerly added to this the *Venus Danmoniensis* and *V. sulcata* of English authors; but my friend M. Koch has pointed out to me that the English species is decidedly distinct. M. Deshayes also in his second edition of Lamarck, represents the *Astarte incrassata* (*Venus incras-*

* See note in the following article, p. 307.

a short description of it in his 'Osservazioni Zoologiche,' (No. II. May 1833, p. 15.) which are but little known. His statements perfectly agree with my observations, with this one exception, that I cannot find the large reddish brown spot which he saw on the mantle in the region of the umbones. I must also fully subscribe to his views upon the systematic classification of the animal which he adds to his description. The description proves that the animal of *Astarte* has no resemblance to that of *Venus*, as was supposed from the constitution of the shell by Cuvier, 'Règne Animal,' edit. 2. vol. iii. p. 150, and Rang, 'Manuel de Malacol.' p. 314, and Deshayes in Lamarck, 'Hist. d. Anim. sans Vert.' edit. 2. vol. vi. p. 256, but on the contrary it quite agrees with *Cardita*.

I cannot help remarking on this occasion, how frequently the laws of analogy which we expect to find between animal and shell fail in the Molluscs. Whilst in the vertebrate animals, almost without exception, a similar osseous skeleton, and even some similar bones, necessarily belong to animals which are also similarly formed in their other systems, we find that in very many cases this is not so in the molluscs. To quite similarly formed shells belong animals of decidedly different structure. I only refer to *Vermetus* and *Serpula*, *Sigaretus* or *Coriocella*, and *Cryptostoma** and *Buccinum*, Lamk., where *B. undatum* is hardly distinguishable from *Fusus antiquus* by anything but its black spots, whilst *B. Linnæi* and *B. maculosum* agree with *Purpura*, *Columbella* and *Mitra*; and many other species, as *B. mutabile*, greatly differ from both mentioned forms; lastly, *Fusus* and *Pleurotoma*. On the contrary, a very similar animal often inhabits very dissimilar shells. I will mention for example *Achatina* and *Carocolla*, *Mitra* and *Purpura*, *Cerithium* and *Rostellaria pes pelecani*, *Cardita* and *Astarte*, &c.

I have still one correction to add concerning the synonyms of *Astarte incrassata*. I formerly added to this the *Venus Danmoniensis* and *V. sulcata* of English authors; but my friend M. Koch has pointed out to me that the English species is decidedly distinct. M. Deshayes also in his second edition of Lamarck, represents the *Astarte incrassata* (*Venus incras-*

* See note in the following article, p. 307.

sata, Brocchi,) and *A. fusca* (*Tellina fusca*, Poli,) as two distinct species (p. 257.), but I must persist in my view, that they are identical. I have at this moment twelve perfect individuals before me; in which I find every transition, from a perfectly smooth shell, only obliquely grooved at the apices, to one which is covered as far as the margin with great regular grooves. Moreover, the shell is sometimes flat, sometimes strongly vaulted.

Fig. 6. *Astarte incrassata*, de la Jonk. One and a half times magnified. The upper mantle lobe is thrown back in some degree, in order to show the form of the foot and the two branchiæ.

8. On the Animal of *Pleurotoma Bertrandi*, Payr. Plate IV. fig. 7.

I have also now seen the living animals of two species of *Pleurotoma*; *Pl. Bertrandi* was very frequent. That which greatly distinguishes the animals from *Fusus* is, that they are quite without operculum. The *foot* when stretched out is somewhat longer than the last whorl of the shell, rather narrow, truncated anteriorly, and slightly emarginate, with an oblique groove; narrowed gradually posteriorly, and at last emarginate. The *branchial tube* projects tolerably far out of the canal. The *head* is small; the *tentacula* are short, filiform and obtuse, thickened half-way up, where they carry the *eyes* externally; they do not unite in an acute angle, as is the case in *Fusus*, *Murex*, *Mitra*, but the head forms a slightly rounded projection, just such a one as is seen in the species of *Tritonium*. The colour is transparent, marbled with yellowish-white, sometimes with reddish-white opake points upon the siphon. The other species, either *Pl. gracile** or a new nearly allied species, is distinguished, with regard to the animal, from the present species solely by the foot being posteriorly acute, and the siphon being decidedly spotted with red.

Fig. 7. *Pleurotoma Bertrandi*, Payr. Magnified four times.

9. On the Eggs of *Vermetus gigas*, Bivona. Plate IV. fig. 8.

During October and November I found *Vermetus gigas* almost always with eggs in different stages of development. They are inclosed in oval, flatly compressed cases, which have

* This is *Murex attenuatus*, Mont. Test. Brit.—J. E. G.

sata, Brocchi,) and *A. fusca* (*Tellina fusca*, Poli,) as two distinct species (p. 257.), but I must persist in my view, that they are identical. I have at this moment twelve perfect individuals before me; in which I find every transition, from a perfectly smooth shell, only obliquely grooved at the apices, to one which is covered as far as the margin with great regular grooves. Moreover, the shell is sometimes flat, sometimes strongly vaulted.

Fig. 6. *Astarte incrassata*, de la Jonk. One and a half times magnified. The upper mantle lobe is thrown back in some degree, in order to show the form of the foot and the two branchiæ.

8. On the Animal of *Pleurotoma Bertrandi*, Payr. Plate IV. fig. 7.

I have also now seen the living animals of two species of *Pleurotoma*; *Pl. Bertrandi* was very frequent. That which greatly distinguishes the animals from *Fusus* is, that they are quite without operculum. The *foot* when stretched out is somewhat longer than the last whorl of the shell, rather narrow, truncated anteriorly, and slightly emarginate, with an oblique groove; narrowed gradually posteriorly, and at last emarginate. The *branchial tube* projects tolerably far out of the canal. The *head* is small; the *tentacula* are short, filiform and obtuse, thickened half-way up, where they carry the *eyes* externally; they do not unite in an acute angle, as is the case in *Fusus*, *Murex*, *Mitra*, but the head forms a slightly rounded projection, just such a one as is seen in the species of *Tritonium*. The colour is transparent, marbled with yellowish-white, sometimes with reddish-white opake points upon the siphon. The other species, either *Pl. gracile** or a new nearly allied species, is distinguished, with regard to the animal, from the present species solely by the foot being posteriorly acute, and the siphon being decidedly spotted with red.

Fig. 7. *Pleurotoma Bertrandi*, Payr. Magnified four times.

9. On the Eggs of *Vermetus gigas*, Bivona. Plate IV. fig. 8.

During October and November I found *Vermetus gigas* almost always with eggs in different stages of development. They are inclosed in oval, flatly compressed cases, which have

* This is *Murex attenuatus*, Mont. Test. Brit.—J. E. G.

sata, Brocchi,) and *A. fusca* (*Tellina fusca*, Poli,) as two distinct species (p. 257.), but I must persist in my view, that they are identical. I have at this moment twelve perfect individuals before me; in which I find every transition, from a perfectly smooth shell, only obliquely grooved at the apices, to one which is covered as far as the margin with great regular grooves. Moreover, the shell is sometimes flat, sometimes strongly vaulted.

Fig. 6. *Astarte incrassata*, de la Jonk. One and a half times magnified. The upper mantle lobe is thrown back in some degree, in order to show the form of the foot and the two branchiæ.

8. On the Animal of *Pleurotoma Bertrandi*, Payr. Plate IV. fig. 7.

I have also now seen the living animals of two species of *Pleurotoma*; *Pl. Bertrandi* was very frequent. That which greatly distinguishes the animals from *Fusus* is, that they are quite without operculum. The *foot* when stretched out is somewhat longer than the last whorl of the shell, rather narrow, truncated anteriorly, and slightly emarginate, with an oblique groove; narrowed gradually posteriorly, and at last emarginate. The *branchial tube* projects tolerably far out of the canal. The *head* is small; the *tentacula* are short, filiform and obtuse, thickened half-way up, where they carry the *eyes* externally; they do not unite in an acute angle, as is the case in *Fusus*, *Murex*, *Mitra*, but the head forms a slightly rounded projection, just such a one as is seen in the species of *Tritonium*. The colour is transparent, marbled with yellowish-white, sometimes with reddish-white opake points upon the siphon. The other species, either *Pl. gracile** or a new nearly allied species, is distinguished, with regard to the animal, from the present species solely by the foot being posteriorly acute, and the siphon being decidedly spotted with red.

Fig. 7. *Pleurotoma Bertrandi*, Payr. Magnified four times.

9. On the Eggs of *Vermetus gigas*, Bivona. Plate IV. fig. 8.

During October and November I found *Vermetus gigas* almost always with eggs in different stages of development. They are inclosed in oval, flatly compressed cases, which have

* This is *Murex attenuatus*, Mont. Test. Brit.—J. E. G.

sata, Brocchi,) and *A. fusca* (*Tellina fusca*, Poli,) as two distinct species (p. 257.), but I must persist in my view, that they are identical. I have at this moment twelve perfect individuals before me; in which I find every transition, from a perfectly smooth shell, only obliquely grooved at the apices, to one which is covered as far as the margin with great regular grooves. Moreover, the shell is sometimes flat, sometimes strongly vaulted.

Fig. 6. *Astarte incrassata*, de la Jonk. One and a half times magnified. The upper mantle lobe is thrown back in some degree, in order to show the form of the foot and the two branchiæ.

8. On the Animal of *Pleurotoma Bertrandi*, Payr. Plate IV. fig. 7.

I have also now seen the living animals of two species of *Pleurotoma*; *Pl. Bertrandi* was very frequent. That which greatly distinguishes the animals from *Fusus* is, that they are quite without operculum. The *foot* when stretched out is somewhat longer than the last whorl of the shell, rather narrow, truncated anteriorly, and slightly emarginate, with an oblique groove; narrowed gradually posteriorly, and at last emarginate. The *branchial tube* projects tolerably far out of the canal. The *head* is small; the *tentacula* are short, filiform and obtuse, thickened half-way up, where they carry the *eyes* externally; they do not unite in an acute angle, as is the case in *Fusus*, *Murex*, *Mitra*, but the head forms a slightly rounded projection, just such a one as is seen in the species of *Tritonium*. The colour is transparent, marbled with yellowish-white, sometimes with reddish-white opake points upon the siphon. The other species, either *Pl. gracile** or a new nearly allied species, is distinguished, with regard to the animal, from the present species solely by the foot being posteriorly acute, and the siphon being decidedly spotted with red.

Fig. 7. *Pleurotoma Bertrandi*, Payr. Magnified four times.

9. On the Eggs of *Vermetus gigas*, Bivona. Plate IV. fig. 8.

During October and November I found *Vermetus gigas* almost always with eggs in different stages of development. They are inclosed in oval, flatly compressed cases, which have

* This is *Murex attenuatus*, Mont. Test. Brit.—J. E. G.

at one end a point with an aperture, the membrane forming the envelope being contracted into a narrow chord. The less developed smaller cases are nearly 2‴ long and 1‴ broad, and contain about twenty to thirty yellow eggs, which appear to be kidney-shaped when slightly magnified, but when more strongly magnified they already show 1 to 1½ whorls of a shell. The larger egg cases are nearly twice the size, and the embryos may be very plainly seen. We recognise a regular shell of two whorls wound to the right, and two black eyes behind, which have between them a blackish stripe, the intestinal canal; the aperture of the shell is extended beneath, as in *Proto*, Defrance. I did not succeed in examining the embryo more accurately. The young shell did not dissolve in vinegar, and from this appears to be of a horny nature. In trying to lay bare the little animal by compression, it was completely crushed every time.

Fig. 8. Eggs of *Vermetus gigas*, Biv.

a. A mass of eggs but little developed.

b. One more developed, in which the embryos are already furnished with one whorl and a half of the shell; both of the natural size.

c. An embryo strongly magnified, with two perfect whorls of the shell. The eyes and the alimentary canal are seen through.

10. *Hersilia* apodiformis*, a new Genus of *Entomostraca*. Plate IV. figs. 9, 10, 11.

On the second of November I found in some sea water two small Crustacea, which at first sight appeared to be similar to *Apus*, with a long tail and swimming about very briskly. A closer examination proved that they were two pairs in the act of coitus, which I was able to place under the microscope without their separating; one pair even held together after death; the tail was the male. They differed in colour; in one pair the female was perfectly transparent, the male on the contrary coloured with large purplish red moveable points; in the other pair it was the reverse, the female was so coloured and the male colourless. From this I suppose that the colour is only in consequence of the food taken.

* This name will require to be changed, having been used by Savigny for a genus of Spiders.

at one end a point with an aperture, the membrane forming the envelope being contracted into a narrow chord. The less developed smaller cases are nearly 2‴ long and 1‴ broad, and contain about twenty to thirty yellow eggs, which appear to be kidney-shaped when slightly magnified, but when more strongly magnified they already show 1 to 1½ whorls of a shell. The larger egg cases are nearly twice the size, and the embryos may be very plainly seen. We recognise a regular shell of two whorls wound to the right, and two black eyes behind, which have between them a blackish stripe, the intestinal canal; the aperture of the shell is extended beneath, as in *Proto*, Defrance. I did not succeed in examining the embryo more accurately. The young shell did not dissolve in vinegar, and from this appears to be of a horny nature. In trying to lay bare the little animal by compression, it was completely crushed every time.

Fig. 8. Eggs of *Vermetus gigas*, Biv.

a. A mass of eggs but little developed.

b. One more developed, in which the embryos are already furnished with one whorl and a half of the shell; both of the natural size.

c. An embryo strongly magnified, with two perfect whorls of the shell. The eyes and the alimentary canal are seen through.

10. *Hersilia* apodiformis*, a new Genus of *Entomostraca*. Plate IV. figs. 9, 10, 11.

On the second of November I found in some sea water two small Crustacea, which at first sight appeared to be similar to *Apus*, with a long tail and swimming about very briskly. A closer examination proved that they were two pairs in the act of coitus, which I was able to place under the microscope without their separating; one pair even held together after death; the tail was the male. They differed in colour; in one pair the female was perfectly transparent, the male on the contrary coloured with large purplish red moveable points; in the other pair it was the reverse, the female was so coloured and the male colourless. From this I suppose that the colour is only in consequence of the food taken.

* This name will require to be changed, having been used by Savigny for a genus of Spiders.

at one end a point with an aperture, the membrane forming the envelope being contracted into a narrow chord. The less developed smaller cases are nearly 2‴ long and 1‴ broad, and contain about twenty to thirty yellow eggs, which appear to be kidney-shaped when slightly magnified, but when more strongly magnified they already show 1 to 1½ whorls of a shell. The larger egg cases are nearly twice the size, and the embryos may be very plainly seen. We recognise a regular shell of two whorls wound to the right, and two black eyes behind, which have between them a blackish stripe, the intestinal canal; the aperture of the shell is extended beneath, as in *Proto*, Defrance. I did not succeed in examining the embryo more accurately. The young shell did not dissolve in vinegar, and from this appears to be of a horny nature. In trying to lay bare the little animal by compression, it was completely crushed every time.

Fig. 8. Eggs of *Vermetus gigas*, Biv.

a. A mass of eggs but little developed.

b. One more developed, in which the embryos are already furnished with one whorl and a half of the shell; both of the natural size.

c. An embryo strongly magnified, with two perfect whorls of the shell. The eyes and the alimentary canal are seen through.

10. *Hersilia* apodiformis*, a new Genus of *Entomostraca*. Plate IV. figs. 9, 10, 11.

On the second of November I found in some sea water two small Crustacea, which at first sight appeared to be similar to *Apus*, with a long tail and swimming about very briskly. A closer examination proved that they were two pairs in the act of coitus, which I was able to place under the microscope without their separating; one pair even held together after death; the tail was the male. They differed in colour; in one pair the female was perfectly transparent, the male on the contrary coloured with large purplish red moveable points; in the other pair it was the reverse, the female was so coloured and the male colourless. From this I suppose that the colour is only in consequence of the food taken.

* This name will require to be changed, having been used by Savigny for a genus of Spiders.

at one end a point with an aperture, the membrane forming the envelope being contracted into a narrow chord. The less developed smaller cases are nearly 2‴ long and 1‴ broad, and contain about twenty to thirty yellow eggs, which appear to be kidney-shaped when slightly magnified, but when more strongly magnified they already show 1 to 1½ whorls of a shell. The larger egg cases are nearly twice the size, and the embryos may be very plainly seen. We recognise a regular shell of two whorls wound to the right, and two black eyes behind, which have between them a blackish stripe, the intestinal canal; the aperture of the shell is extended beneath, as in *Proto*, Defrance. I did not succeed in examining the embryo more accurately. The young shell did not dissolve in vinegar, and from this appears to be of a horny nature. In trying to lay bare the little animal by compression, it was completely crushed every time.

Fig. 8. Eggs of *Vermetus gigas*, Biv.

a. A mass of eggs but little developed.

b. One more developed, in which the embryos are already furnished with one whorl and a half of the shell; both of the natural size.

c. An embryo strongly magnified, with two perfect whorls of the shell. The eyes and the alimentary canal are seen through.

10. *Hersilia* apodiformis*, a new Genus of *Entomostraca*. Plate IV. figs. 9, 10, 11.

On the second of November I found in some sea water two small Crustacea, which at first sight appeared to be similar to *Apus*, with a long tail and swimming about very briskly. A closer examination proved that they were two pairs in the act of coitus, which I was able to place under the microscope without their separating; one pair even held together after death; the tail was the male. They differed in colour; in one pair the female was perfectly transparent, the male on the contrary coloured with large purplish red moveable points; in the other pair it was the reverse, the female was so coloured and the male colourless. From this I suppose that the colour is only in consequence of the food taken.

* This name will require to be changed, having been used by Savigny for a genus of Spiders.

The female, without the tail bristles, is $\frac{2}{3}$rds of a line long, and oval; the male not quite half so long, and narrower. The body was quite covered by a quadriarticulated *shield*; the first segment occupies nearly the half of its length, the last a fourth, the second and third each an eighth part; the first three segments have a point on each side at the end. On the first segment I saw in front two round points at a moderate distance from each other, which I am inclined to take for eyes. Under the shield anteriorly only the two great antennæ appear, posteriorly the tail and the extremities of the posterior legs. The antennæ are only two in number, inserted beneath the shield, near to the anterior margin. They attain to half the length of the body, and appear to consist of five articulations. The basal joint is very short, concealed beneath the shield; the second articulation is longest of all, then the fifth; the fourth is the shortest after the first. Perhaps the fifth consists of several articulations: I was however unable to assure myself of this. Anteriorly all these joints are ciliated with long stiff bristles, posteriorly there is only one bristle at the end of every joint. There are four pairs of distinct feet; one to each segment of the shield. The three first pairs are quite similarly formed, and consist of a biarticulated stalk, which bears two ramifications. The stalk has posteriorly a long bristle on the first joint, a shorter one on the front end of the second. The front ramification consists of three articulations, of which the third is as long as the two first together; it has upon its anterior side three strong bristles, and posteriorly five longer but weaker ones, whilst the two first articulations have only a short bristle at the anterior end. The hinder ramification is just as long and has also three articulations, but these are alike and densely beset with cilia on the posterior side. The fourth pair is simple, biarticulated; the first articulation is very short, the second rather long and armed with four bristles. The tail is about the third part of the whole length of the animal, but only half of it projects from beneath the shield. It is not distinctly articulated, tapering towards the end, and terminates in two obtuse small projections, each of which bears five long bristles. The inner bristles are the longest, in the male more than half as long as the body, in the female considerably

The female, without the tail bristles, is $\frac{2}{3}$rds of a line long, and oval; the male not quite half so long, and narrower. The body was quite covered by a quadriarticulated *shield*; the first segment occupies nearly the half of its length, the last a fourth, the second and third each an eighth part; the first three segments have a point on each side at the end. On the first segment I saw in front two round points at a moderate distance from each other, which I am inclined to take for eyes. Under the shield anteriorly only the two great antennæ appear, posteriorly the tail and the extremities of the posterior legs. The antennæ are only two in number, inserted beneath the shield, near to the anterior margin. They attain to half the length of the body, and appear to consist of five articulations. The basal joint is very short, concealed beneath the shield; the second articulation is longest of all, then the fifth; the fourth is the shortest after the first. Perhaps the fifth consists of several articulations: I was however unable to assure myself of this. Anteriorly all these joints are ciliated with long stiff bristles, posteriorly there is only one bristle at the end of every joint. There are four pairs of distinct feet; one to each segment of the shield. The three first pairs are quite similarly formed, and consist of a biarticulated stalk, which bears two ramifications. The stalk has posteriorly a long bristle on the first joint, a shorter one on the front end of the second. The front ramification consists of three articulations, of which the third is as long as the two first together; it has upon its anterior side three strong bristles, and posteriorly five longer but weaker ones, whilst the two first articulations have only a short bristle at the anterior end. The hinder ramification is just as long and has also three articulations, but these are alike and densely beset with cilia on the posterior side. The fourth pair is simple, biarticulated; the first articulation is very short, the second rather long and armed with four bristles. The tail is about the third part of the whole length of the animal, but only half of it projects from beneath the shield. It is not distinctly articulated, tapering towards the end, and terminates in two obtuse small projections, each of which bears five long bristles. The inner bristles are the longest, in the male more than half as long as the body, in the female considerably

The female, without the tail bristles, is $\frac{2}{3}$rds of a line long, and oval; the male not quite half so long, and narrower. The body was quite covered by a quadriarticulated *shield*; the first segment occupies nearly the half of its length, the last a fourth, the second and third each an eighth part; the first three segments have a point on each side at the end. On the first segment I saw in front two round points at a moderate distance from each other, which I am inclined to take for eyes. Under the shield anteriorly only the two great antennæ appear, posteriorly the tail and the extremities of the posterior legs. The antennæ are only two in number, inserted beneath the shield, near to the anterior margin. They attain to half the length of the body, and appear to consist of five articulations. The basal joint is very short, concealed beneath the shield; the second articulation is longest of all, then the fifth; the fourth is the shortest after the first. Perhaps the fifth consists of several articulations: I was however unable to assure myself of this. Anteriorly all these joints are ciliated with long stiff bristles, posteriorly there is only one bristle at the end of every joint. There are four pairs of distinct feet; one to each segment of the shield. The three first pairs are quite similarly formed, and consist of a biarticulated stalk, which bears two ramifications. The stalk has posteriorly a long bristle on the first joint, a shorter one on the front end of the second. The front ramification consists of three articulations, of which the third is as long as the two first together; it has upon its anterior side three strong bristles, and posteriorly five longer but weaker ones, whilst the two first articulations have only a short bristle at the anterior end. The hinder ramification is just as long and has also three articulations, but these are alike and densely beset with cilia on the posterior side. The fourth pair is simple, biarticulated; the first articulation is very short, the second rather long and armed with four bristles. The tail is about the third part of the whole length of the animal, but only half of it projects from beneath the shield. It is not distinctly articulated, tapering towards the end, and terminates in two obtuse small projections, each of which bears five long bristles. The inner bristles are the longest, in the male more than half as long as the body, in the female considerably

The female, without the tail bristles, is $\frac{2}{3}$rds of a line long, and oval; the male not quite half so long, and narrower. The body was quite covered by a quadriarticulated *shield*; the first segment occupies nearly the half of its length, the last a fourth, the second and third each an eighth part; the first three segments have a point on each side at the end. On the first segment I saw in front two round points at a moderate distance from each other, which I am inclined to take for eyes. Under the shield anteriorly only the two great antennæ appear, posteriorly the tail and the extremities of the posterior legs. The antennæ are only two in number, inserted beneath the shield, near to the anterior margin. They attain to half the length of the body, and appear to consist of five articulations. The basal joint is very short, concealed beneath the shield; the second articulation is longest of all, then the fifth; the fourth is the shortest after the first. Perhaps the fifth consists of several articulations: I was however unable to assure myself of this. Anteriorly all these joints are ciliated with long stiff bristles, posteriorly there is only one bristle at the end of every joint. There are four pairs of distinct feet; one to each segment of the shield. The three first pairs are quite similarly formed, and consist of a biarticulated stalk, which bears two ramifications. The stalk has posteriorly a long bristle on the first joint, a shorter one on the front end of the second. The front ramification consists of three articulations, of which the third is as long as the two first together; it has upon its anterior side three strong bristles, and posteriorly five longer but weaker ones, whilst the two first articulations have only a short bristle at the anterior end. The hinder ramification is just as long and has also three articulations, but these are alike and densely beset with cilia on the posterior side. The fourth pair is simple, biarticulated; the first articulation is very short, the second rather long and armed with four bristles. The tail is about the third part of the whole length of the animal, but only half of it projects from beneath the shield. It is not distinctly articulated, tapering towards the end, and terminates in two obtuse small projections, each of which bears five long bristles. The inner bristles are the longest, in the male more than half as long as the body, in the female considerably

shorter. In the tail on each side is the orifice for the female sexual apparatus.

What I could observe of the *cibarian apparatus* is as follows: Behind the tentacula are two diverging *mandibles*, which are of the form of an obtuse-angled quadrant, and upon the posterior side of the second joint it is beset with long and thick cilia. Between their insertion is a triangular space with the apex directed posteriorly, perhaps the mouth. Beneath the cilia, on each side, are three *maxillæ*, which terminate in a forked bristle, and consequently remotely remind us of the pincers of *Limulus*. In both sexes between these parts and the first pair of feet is situated a *foot jaw* on each side. It is nearly quadrate, and terminates at the anterior and inner angle in a long acute tooth: on the front side it also carries a small appendage of a vesicular form, and exteriorly a biarticulated flagelliform palpus. I could not distinctly recognise the sexual apparatus of the male from the minuteness of the animal. Two large almost clavate organs which were inserted in the vulva of the female are situated on both sides of the mouth, besides which there are two antenniform setigerous organs, which take their origin close behind the true antennæ. At first sight the animal reminds us of *Apus* by its great shield, but it is more nearly allied to *Cyclops* by its tail and the biramified legs. It is still more nearly allied to the genus *Sapphirina* of Thomson, with which I am acquainted only from Lamarck's 'Hist. Nat.' (2nd edit. &c. vol. v. p. 171.), which also has a flat compressed shield-like body, biramified legs, and only two tentacula, but is distinguished from it by a shield of nine segments and four pairs of biramified legs. The essential characters are briefly contained in the following description: Corpus clypeo magno e segmentis quatuor formato obtectum. Antennæ duæ magnæ, filiformes, 5-articulatæ. Pedum paria quatuor, tria pinna bifida, quartum simplex. Cauda apice bifida et setigera.

Fig. 9. *Hersilia apodiformis*, mihi. A female lying on its back. Sixty times magnified.

i. The eyes.

a. The mandibulæ?

b. The maxillæ.

c. The foot jaw with its biarticulated flagelliform palpus.

d. The three pairs of biramified legs.

shorter. In the tail on each side is the orifice for the female sexual apparatus.

What I could observe of the *cibarian apparatus* is as follows: Behind the tentacula are two diverging *mandibles*, which are of the form of an obtuse-angled quadrant, and upon the posterior side of the second joint it is beset with long and thick cilia. Between their insertion is a triangular space with the apex directed posteriorly, perhaps the mouth. Beneath the cilia, on each side, are three *maxillæ*, which terminate in a forked bristle, and consequently remotely remind us of the pincers of *Limulus*. In both sexes between these parts and the first pair of feet is situated a *foot jaw* on each side. It is nearly quadrate, and terminates at the anterior and inner angle in a long acute tooth: on the front side it also carries a small appendage of a vesicular form, and exteriorly a biarticulated flagelliform palpus. I could not distinctly recognise the sexual apparatus of the male from the minuteness of the animal. Two large almost clavate organs which were inserted in the vulva of the female are situated on both sides of the mouth, besides which there are two antenniform setigerous organs, which take their origin close behind the true antennæ. At first sight the animal reminds us of *Apus* by its great shield, but it is more nearly allied to *Cyclops* by its tail and the biramified legs. It is still more nearly allied to the genus *Sapphirina* of Thomson, with which I am acquainted only from Lamarck's 'Hist. Nat.' (2nd edit. &c. vol. v. p. 171.), which also has a flat compressed shield-like body, biramified legs, and only two tentacula, but is distinguished from it by a shield of nine segments and four pairs of biramified legs. The essential characters are briefly contained in the following description: Corpus clypeo magno e segmentis quatuor formato obtectum. Antennæ duæ magnæ, filiformes, 5-articulatæ. Pedum paria quatuor, tria pinna bifida, quartum simplex. Cauda apice bifida et setigera.

Fig. 9. *Hersilia apodiformis*, mihi. A female lying on its back. Sixty times magnified.

i. The eyes.

a. The mandibulæ?

b. The maxillæ.

c. The foot jaw with its biarticulated flagelliform palpus.

d. The three pairs of biramified legs.

shorter. In the tail on each side is the orifice for the female sexual apparatus.

What I could observe of the *cibarian apparatus* is as follows: Behind the tentacula are two diverging *mandibles*, which are of the form of an obtuse-angled quadrant, and upon the posterior side of the second joint it is beset with long and thick cilia. Between their insertion is a triangular space with the apex directed posteriorly, perhaps the mouth. Beneath the cilia, on each side, are three *maxillæ*, which terminate in a forked bristle, and consequently remotely remind us of the pincers of *Limulus*. In both sexes between these parts and the first pair of feet is situated a *foot jaw* on each side. It is nearly quadrate, and terminates at the anterior and inner angle in a long acute tooth: on the front side it also carries a small appendage of a vesicular form, and exteriorly a biarticulated flagelliform palpus. I could not distinctly recognise the sexual apparatus of the male from the minuteness of the animal. Two large almost clavate organs which were inserted in the vulva of the female are situated on both sides of the mouth, besides which there are two antenniform setigerous organs, which take their origin close behind the true antennæ. At first sight the animal reminds us of *Apus* by its great shield, but it is more nearly allied to *Cyclops* by its tail and the biramified legs. It is still more nearly allied to the genus *Sapphirina* of Thomson, with which I am acquainted only from Lamarck's 'Hist. Nat.' (2nd edit. &c. vol. v. p. 171.), which also has a flat compressed shield-like body, biramified legs, and only two tentacula, but is distinguished from it by a shield of nine segments and four pairs of biramified legs. The essential characters are briefly contained in the following description: Corpus clypeo magno e segmentis quatuor formato obtectum. Antennæ duæ magnæ, filiformes, 5-articulatæ. Pedum paria quatuor, tria pinna bifida, quartum simplex. Cauda apice bifida et setigera.

Fig. 9. *Hersilia apodiformis*, mihi. A female lying on its back. Sixty times magnified.

i. The eyes.

a. The mandibulæ?

b. The maxillæ.

c. The foot jaw with its biarticulated flagelliform palpus.

d. The three pairs of biramified legs.

shorter. In the tail on each side is the orifice for the female sexual apparatus.

What I could observe of the *cibarian apparatus* is as follows: Behind the tentacula are two diverging *mandibles*, which are of the form of an obtuse-angled quadrant, and upon the posterior side of the second joint it is beset with long and thick cilia. Between their insertion is a triangular space with the apex directed posteriorly, perhaps the mouth. Beneath the cilia, on each side, are three *maxillæ*, which terminate in a forked bristle, and consequently remotely remind us of the pincers of *Limulus*. In both sexes between these parts and the first pair of feet is situated a *foot jaw* on each side. It is nearly quadrate, and terminates at the anterior and inner angle in a long acute tooth: on the front side it also carries a small appendage of a vesicular form, and exteriorly a biarticulated flagelliform palpus. I could not distinctly recognise the sexual apparatus of the male from the minuteness of the animal. Two large almost clavate organs which were inserted in the vulva of the female are situated on both sides of the mouth, besides which there are two antenniform setigerous organs, which take their origin close behind the true antennæ. At first sight the animal reminds us of *Apus* by its great shield, but it is more nearly allied to *Cyclops* by its tail and the biramified legs. It is still more nearly allied to the genus *Sapphirina* of Thomson, with which I am acquainted only from Lamarck's 'Hist. Nat.' (2nd edit. &c. vol. v. p. 171.), which also has a flat compressed shield-like body, biramified legs, and only two tentacula, but is distinguished from it by a shield of nine segments and four pairs of biramified legs. The essential characters are briefly contained in the following description: Corpus clypeo magno e segmentis quatuor formato obtectum. Antennæ duæ magnæ, filiformes, 5-articulatæ. Pedum paria quatuor, tria pinna bifida, quartum simplex. Cauda apice bifida et setigera.

Fig. 9. *Hersilia apodiformis*, mihi. A female lying on its back. Sixty times magnified.

i. The eyes.

a. The mandibulæ?

b. The maxillæ.

c. The foot jaw with its biarticulated flagelliform palpus.

d. The three pairs of biramified legs.

e. The pair of simple legs.
f. The vulva.
Fig. 10. The male in the act of coitus hanging to the tail of the female, magnified with the same power.
g. The posterior antennæ?
h. The two penes.
Fig. 11. A female of *Hersilia apodiformis*. Natural size.

11. *Peltidium purpureum*, a new genus of *Entomostraca*.
Plate IV. fig. 12 and 13.

I have only one specimen of this little animal, which is scarcely $\frac{1}{2}'''$ in size. The body is expanded in a shield of seven segments, which in its general contour is ovate. The first segment is nearly as large as the following segments together, and has in some degree the form of a trapezium whose base is turned backwards, and is bounded by a concave line. Anteriorly it has a truncated protuberance, on which two small round points appear, and probably are the eyes. The following five segments are of a narrow crescent form; the last and smallest is again in the form of a trapezium. Behind this projects the very short two-pointed tail; each of its points is furnished with four bristles, of which the inner one is the longest. The antennæ are two in number; they proceed from the angles which the first segment forms with its appendage, attain nearly a third part of the length of the animal, and consist of six short articulations, the two last of which are very small. On the front side, and especially at the apex, they are provided with long bristles. I find six pairs of legs. The *first pair*, which appear to be inserted after the first segment, is simple, and seems to consist of three articulations only. (Fig. 13, *c*.) The second articulation, somewhat thickened at its base, has a tooth towards the end of the hinder side; the third articulation is a narrow moderately curved claw. The following four pairs of feet are biramified, and have this character in common, that the hinder or inner branch originates at a moderate distance from the apex of the stalk. (See fig. 13. *d, e, f*.) Both the outer and inner branches of the *second pair* have two articulations, and the first branch is twice as long as the second. Its second articulation is the longest, and ends with three short bristles, two of which are bent in the form of a hook. (*d*.) The *third pair* (*e*.) is distinguished from the two following

e. The pair of simple legs.
f. The vulva.
Fig. 10. The male in the act of coitus hanging to the tail of the female, magnified with the same power.
g. The posterior antennæ?
h. The two penes.
Fig. 11. A female of *Hersilia apodiformis*. Natural size.

11. *Peltidium purpureum*, a new genus of *Entomostraca*.
Plate IV. fig. 12 and 13.

I have only one specimen of this little animal, which is scarcely $\frac{1}{2}'''$ in size. The body is expanded in a shield of seven segments, which in its general contour is ovate. The first segment is nearly as large as the following segments together, and has in some degree the form of a trapezium whose base is turned backwards, and is bounded by a concave line. Anteriorly it has a truncated protuberance, on which two small round points appear, and probably are the eyes. The following five segments are of a narrow crescent form; the last and smallest is again in the form of a trapezium. Behind this projects the very short two-pointed tail; each of its points is furnished with four bristles, of which the inner one is the longest. The antennæ are two in number; they proceed from the angles which the first segment forms with its appendage, attain nearly a third part of the length of the animal, and consist of six short articulations, the two last of which are very small. On the front side, and especially at the apex, they are provided with long bristles. I find six pairs of legs. The *first pair*, which appear to be inserted after the first segment, is simple, and seems to consist of three articulations only. (Fig. 13, *c*.) The second articulation, somewhat thickened at its base, has a tooth towards the end of the hinder side; the third articulation is a narrow moderately curved claw. The following four pairs of feet are biramified, and have this character in common, that the hinder or inner branch originates at a moderate distance from the apex of the stalk. (See fig. 13. *d, e, f*.) Both the outer and inner branches of the *second pair* have two articulations, and the first branch is twice as long as the second. Its second articulation is the longest, and ends with three short bristles, two of which are bent in the form of a hook. (*d*.) The *third pair* (*e*.) is distinguished from the two following

e. The pair of simple legs.
f. The vulva.
Fig. 10. The male in the act of coitus hanging to the tail of the female, magnified with the same power.
g. The posterior antennæ?
h. The two penes.
Fig. 11. A female of *Hersilia apodiformis*. Natural size.

11. *Peltidium purpureum*, a new genus of *Entomostraca*.
Plate IV. fig. 12 and 13.

I have only one specimen of this little animal, which is scarcely $\frac{1}{2}'''$ in size. The body is expanded in a shield of seven segments, which in its general contour is ovate. The first segment is nearly as large as the following segments together, and has in some degree the form of a trapezium whose base is turned backwards, and is bounded by a concave line. Anteriorly it has a truncated protuberance, on which two small round points appear, and probably are the eyes. The following five segments are of a narrow crescent form; the last and smallest is again in the form of a trapezium. Behind this projects the very short two-pointed tail; each of its points is furnished with four bristles, of which the inner one is the longest. The antennæ are two in number; they proceed from the angles which the first segment forms with its appendage, attain nearly a third part of the length of the animal, and consist of six short articulations, the two last of which are very small. On the front side, and especially at the apex, they are provided with long bristles. I find six pairs of legs. The *first pair*, which appear to be inserted after the first segment, is simple, and seems to consist of three articulations only. (Fig. 13, *c*.) The second articulation, somewhat thickened at its base, has a tooth towards the end of the hinder side; the third articulation is a narrow moderately curved claw. The following four pairs of feet are biramified, and have this character in common, that the hinder or inner branch originates at a moderate distance from the apex of the stalk. (See fig. 13. *d, e, f*.) Both the outer and inner branches of the *second pair* have two articulations, and the first branch is twice as long as the second. Its second articulation is the longest, and ends with three short bristles, two of which are bent in the form of a hook. (*d*.) The *third pair* (*e*.) is distinguished from the two following

e. The pair of simple legs.
f. The vulva.
Fig. 10. The male in the act of coitus hanging to the tail of the female, magnified with the same power.
g. The posterior antennæ?
h. The two penes.
Fig. 11. A female of *Hersilia apodiformis*. Natural size.

11. *Peltidium purpureum*, a new genus of *Entomostraca*.
Plate IV. fig. 12 and 13.

I have only one specimen of this little animal, which is scarcely $\frac{1}{2}'''$ in size. The body is expanded in a shield of seven segments, which in its general contour is ovate. The first segment is nearly as large as the following segments together, and has in some degree the form of a trapezium whose base is turned backwards, and is bounded by a concave line. Anteriorly it has a truncated protuberance, on which two small round points appear, and probably are the eyes. The following five segments are of a narrow crescent form; the last and smallest is again in the form of a trapezium. Behind this projects the very short two-pointed tail; each of its points is furnished with four bristles, of which the inner one is the longest. The antennæ are two in number; they proceed from the angles which the first segment forms with its appendage, attain nearly a third part of the length of the animal, and consist of six short articulations, the two last of which are very small. On the front side, and especially at the apex, they are provided with long bristles. I find six pairs of legs. The *first pair*, which appear to be inserted after the first segment, is simple, and seems to consist of three articulations only. (Fig. 13, *c*.) The second articulation, somewhat thickened at its base, has a tooth towards the end of the hinder side; the third articulation is a narrow moderately curved claw. The following four pairs of feet are biramified, and have this character in common, that the hinder or inner branch originates at a moderate distance from the apex of the stalk. (See fig. 13. *d, e, f*.) Both the outer and inner branches of the *second pair* have two articulations, and the first branch is twice as long as the second. Its second articulation is the longest, and ends with three short bristles, two of which are bent in the form of a hook. (*d*.) The *third pair* (*e*.) is distinguished from the two following

by its inner branch being triarticulated, whilst the latter have only two joints. The outward branch is in them also triarticulated; the first and second have at the end in front a thick bristle, and posteriorly a similar one in the centre; the last joint, which is twice as long as the preceding, has in front four short strong bristles, and behind five longer weaker bristles. The *last pair of feet* is again simple, biarticulated? the last joint longish, slightly curved, and has three spines exteriorly, four at the apex, and one behind. (*g.*) From the small size of the animal, and as I had only one specimen, I could but very imperfectly distinguish the cibarian apparatus. Nevertheless I plainly saw, in the first place, behind the antennæ, a *mandible*, consisting of two linear joints of equal length and breadth, the first of which bears posteriorly in the centre a four-branched bristle, and the last one several simple bristles at the end (see fig. 13. *a.*), manifestly the same organ which appears in a slightly differing form in *Hersilia*; in the second place, a *foot jaw*? likewise consisting of two equally long joints; the second of these is very narrow, and bears at the apex a short unguis or some very short bristles. (*b.*)

The colour of the animal was a dark purplish-red; the antennæ, tail, and legs pale red; the fore margin of the cephalic appendage colourless.

This genus stands between *Hersilia* and *Sapphirina*, and is distinguished from both of them by the different number of thoracic segments and of the feet, as well as by the structure of the first pair of feet. It may be thus briefly characterized: Corpus clypeo magno, e segmentis septem formato obtectum; segmento primo maximo. Antennæ duæ magnæ sexarticulatæ. Pedum paria sex; par primum simplex, ungue longo terminatum; paria secundum, tertium, quartum et quintum ramos duos gerentia; par sextum simplex. Cauda apice bifida et setigera.

Fig. 12. *Peltidum purpureum mihi*, natural size.

Fig. 13. The same lying on its belly, magnified sixty times.

a. The mandibles.

b. The foot jaw?

c. A foot of the first pair.

d. A foot of the second, *e.* of the third, *f.* of the fourth or fifth, *g.* of the sixth pair.

by its inner branch being triarticulated, whilst the latter have only two joints. The outward branch is in them also triarticulated; the first and second have at the end in front a thick bristle, and posteriorly a similar one in the centre; the last joint, which is twice as long as the preceding, has in front four short strong bristles, and behind five longer weaker bristles. The *last pair of feet* is again simple, biarticulated? the last joint longish, slightly curved, and has three spines exteriorly, four at the apex, and one behind. (*g.*) From the small size of the animal, and as I had only one specimen, I could but very imperfectly distinguish the cibarian apparatus. Nevertheless I plainly saw, in the first place, behind the antennæ, a *mandible*, consisting of two linear joints of equal length and breadth, the first of which bears posteriorly in the centre a four-branched bristle, and the last one several simple bristles at the end (see fig. 13. *a.*), manifestly the same organ which appears in a slightly differing form in *Hersilia*; in the second place, a *foot jaw*? likewise consisting of two equally long joints; the second of these is very narrow, and bears at the apex a short unguis or some very short bristles. (*b.*)

The colour of the animal was a dark purplish-red; the antennæ, tail, and legs pale red; the fore margin of the cephalic appendage colourless.

This genus stands between *Hersilia* and *Sapphirina*, and is distinguished from both of them by the different number of thoracic segments and of the feet, as well as by the structure of the first pair of feet. It may be thus briefly characterized: Corpus clypeo magno, e segmentis septem formato obtectum; segmento primo maximo. Antennæ duæ magnæ sexarticulatæ. Pedum paria sex; par primum simplex, ungue longo terminatum; paria secundum, tertium, quartum et quintum ramos duos gerentia; par sextum simplex. Cauda apice bifida et setigera.

Fig. 12. *Peltidum purpureum mihi*, natural size.

Fig. 13. The same lying on its belly, magnified sixty times.

a. The mandibles.

b. The foot jaw?

c. A foot of the first pair.

d. A foot of the second, *e.* of the third, *f.* of the fourth or fifth, *g.* of the sixth pair.

by its inner branch being triarticulated, whilst the latter have only two joints. The outward branch is in them also triarticulated; the first and second have at the end in front a thick bristle, and posteriorly a similar one in the centre; the last joint, which is twice as long as the preceding, has in front four short strong bristles, and behind five longer weaker bristles. The *last pair of feet* is again simple, biarticulated? the last joint longish, slightly curved, and has three spines exteriorly, four at the apex, and one behind. (*g.*) From the small size of the animal, and as I had only one specimen, I could but very imperfectly distinguish the cibarian apparatus. Nevertheless I plainly saw, in the first place, behind the antennæ, a *mandible*, consisting of two linear joints of equal length and breadth, the first of which bears posteriorly in the centre a four-branched bristle, and the last one several simple bristles at the end (see fig. 13. *a.*), manifestly the same organ which appears in a slightly differing form in *Hersilia*; in the second place, a *foot jaw*? likewise consisting of two equally long joints; the second of these is very narrow, and bears at the apex a short unguis or some very short bristles. (*b.*)

The colour of the animal was a dark purplish-red; the antennæ, tail, and legs pale red; the fore margin of the cephalic appendage colourless.

This genus stands between *Hersilia* and *Sapphirina*, and is distinguished from both of them by the different number of thoracic segments and of the feet, as well as by the structure of the first pair of feet. It may be thus briefly characterized: Corpus clypeo magno, e segmentis septem formato obtectum; segmento primo maximo. Antennæ duæ magnæ sexarticulatæ. Pedum paria sex; par primum simplex, ungue longo terminatum; paria secundum, tertium, quartum et quintum ramos duos gerentia; par sextum simplex. Cauda apice bifida et setigera.

Fig. 12. *Peltidum purpureum mihi*, natural size.

Fig. 13. The same lying on its belly, magnified sixty times.

a. The mandibles.

b. The foot jaw?

c. A foot of the first pair.

d. A foot of the second, *e.* of the third, *f.* of the fourth or fifth, *g.* of the sixth pair.

by its inner branch being triarticulated, whilst the latter have only two joints. The outward branch is in them also triarticulated; the first and second have at the end in front a thick bristle, and posteriorly a similar one in the centre; the last joint, which is twice as long as the preceding, has in front four short strong bristles, and behind five longer weaker bristles. The *last pair of feet* is again simple, biarticulated? the last joint longish, slightly curved, and has three spines exteriorly, four at the apex, and one behind. (*g.*) From the small size of the animal, and as I had only one specimen, I could but very imperfectly distinguish the cibarian apparatus. Nevertheless I plainly saw, in the first place, behind the antennæ, a *mandible*, consisting of two linear joints of equal length and breadth, the first of which bears posteriorly in the centre a four-branched bristle, and the last one several simple bristles at the end (see fig. 13. *a.*), manifestly the same organ which appears in a slightly differing form in *Hersilia*; in the second place, a *foot jaw*? likewise consisting of two equally long joints; the second of these is very narrow, and bears at the apex a short unguis or some very short bristles. (*b.*)

The colour of the animal was a dark purplish-red; the antennæ, tail, and legs pale red; the fore margin of the cephalic appendage colourless.

This genus stands between *Hersilia* and *Sapphirina*, and is distinguished from both of them by the different number of thoracic segments and of the feet, as well as by the structure of the first pair of feet. It may be thus briefly characterized: Corpus clypeo magno, e segmentis septem formato obtectum; segmento primo maximo. Antennæ duæ magnæ sexarticulatæ. Pedum paria sex; par primum simplex, ungue longo terminatum; paria secundum, tertium, quartum et quintum ramos duos gerentia; par sextum simplex. Cauda apice bifida et setigera.

Fig. 12. *Peltidum purpureum mihi*, natural size.

Fig. 13. The same lying on its belly, magnified sixty times.

a. The mandibles.

b. The foot jaw?

c. A foot of the first pair.

d. A foot of the second, *e.* of the third, *f.* of the fourth or fifth, *g.* of the sixth pair.